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ABSTRACT

The purpose of this study was to determine the applicability of sociobehavioral principles and techniques for influencing or changing the behavior of adults in a learning group. The behavior on which this study focused was off-task behavior, defined as that behavior inconsistent or incongruent with the lesson plan for that particular day, or with the subject being discussed. Behavioral data were collected through the use of video equipment and an instrument developed by the experimenters. Working hypotheses stated that: (1) the level of off-task behavior, demonstrated before the experimental condition, would decrease when the three variables of social reinforcement, extinction, and a discriminative stimulus were applied as the experimental condition; and (2) the level of off-task behavior would return to its pre-experimental level when systematic social reinforcement was removed. The findings corroborated these hypotheses. It was concluded that systematic social reinforcement was a necessary condition for bringing about behavioral change, but the data did not permit speculation on whether social reinforcement alone would have effected the observed results. (Author)

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A SOCIOBEHAVIORAL APPROACH TO ENHANCING ADAPTIVE BEHAVIOR AND REDUCING DEVIANT BEHAVIOR OF ADULTS IN A LEARNING GROUP

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ABSTRACT

The purpose of this study was to determine the applicability of sociobehavioral principles and techniques for influencing or changing the behavior of adults in a learning group. The behavior on which this study focused was off-task behavior, defined as that behavior inconsistent or incongruent with the lesson plan for that particular day, or with the subject being discussed. Behavioral data were collected through the use of video tape equipment and an instrument developed by the experimenters. Working hypotheses stated that, 1) the level of off-task behavior, demonstrated before the experimental condition, would decrease when the three variables of social reinforcement, extinction, and a discriminative stimulus were applied as the experimental condition; and, 2) the level of off-task behavior would return to its pre-experimental level when systematic social reinforcement was removed. The findings corroborated these hypotheses. It was concluded that systematic social reinforcement was a necessary condition for bringing about behavioral change, but the data did not permit speculation on whether social reinforcement alone would have effected the observed results.

INTRODUCTION

The basis of a sociobehavioral approach for the purpose of influencing human behavior is derived primarily from research on

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learning and behavioral modification in the social and behavioral sciences. Behavior change (learning) is a primary concern of adult educators, counselors, social workers, and other members of the helping professions. The literature of these professions abounds with principles, generalizations, descriptions and typologies recommended as guides or frames of reference for the practitioner. Unfortunately, little attention has been given to identifying procedures for action, based upon empirical evidence, that the practitioner can rely upon to effect behavior change (e.g., learning) with mature students in learning groups. Granted, much has been done to develop principles for changing the behavior of children, and recently for training parents in the use of such principles to modify the behavior of their children (Fargo, Behrns, and Nolen, 1970). Attention has focused upon providing empirical support for principles and techniques of behavior change, based upon the use of machines, money, candy and other material objects as reinforcers. Little has been done to provide support for the use of a more readily available reinforcer, social reinforcement. Most studies have focused upon changing the behavior of individuals per se rather than focusing on change of a total group, such as the class, discussion group or therapy group. This appears to be a major omission since so much of the effort of the social practitioner is expended in group contexts.

This study was aimed at identifying and providing empirical support for principles and techniques which can be used by adult

educators concerned with changing, modifying or enhancing the behavior of mature students in learning groups. It seemed reasonable to do so since there has been a growing body of literature expounding the importance of environmental conditions in influencing behavior change and consistency. On this one point, the behaviorists (Skinner, 1971) and third force or humanistic psychologists (Rogers, 1969) would seem to agree. Knowles, speaking from the humanistic perspective, set forth a number of superior conditions of teaching and learning, and placed considerable emphasis on the establishment of a climate conducive to learning (Knowles, 1970, 1973). Yet, he was vague on how these "superior" conditions could be operationalized by the practitioner.

In contrast to Knowles' emphasis on climate and conditions, other educators focused on the actual performance of acquired behaviors as the demonstration of learning. The task of the educational technician is to design environmental stimuli or conditions that will yield the desired learning outcome. It seems these viewpoints are not as antagonistic to the humanistic perspective as is often argued, even though they place different emphasis on the active intervention of the learner in mediating between environmental stimuli and the ultimate response which is presented. The end for both is desired change in the learner. Likewise, both stress the development of environmental conditions, either in behavior specific terms or in global climactic terms, as being instrumental to this end. (The authors of this paper

wish to stress this similarity rather than the major point of difference which exists in these two viewpoints).

Even though Knowles is widely quoted by many adult educators, he is somewhat vague on how the superior conditions of teaching and learning could be operationalized to create the desired learning situation. With this as the problematic circumstance, the authors of this paper felt that concepts and principles taken from learning theory (primarily the behaviorist school) would be helpful in operationalizing the vague notions of the "ideal" class climate so often advocated by humanistic educators.

STATEMENT OF THE PROBLEM

Most participants in adult and continuing education functions may be considered adults. They have accumulated work experiences of various kinds, and have acquired other social responsibilities that may affect their roles as learners. They must attend to a variety of social, economic and other personal responsibilities beyond those to which less mature students must attend. These other responsibilities may, and probably do, interfere with their ability to attend to material or content being presented in learning groups. Since most students in adult education settings bring many conflicts into the learning situation, the educator must be particularly attuned to designing and implementing programs, activities and behaviors that will capture the attention of the mature student so that educational ends may be more effectively attained. Many suggestions have been made by writers

concerned with this problem. They have suggested that course content be relevant and applicable to the concerns of the adult learner, that activities be structured which actively engage the adult student in the learning process, and that the learner be helped to be responsible for the attainment of his own learning objectives. The specific nuances of capturing, directing and maintaining the attention of adult students do not appear to be present in the literature. Therefore, the problem of this study was to assess whether a sociobehavioral approach using systematic social reinforcement could be effectively utilized to direct the learner's attention away from external problems and focus it on the substantive content of an adult learning situation, unless of course, the purpose of the learning situation was to deal with external problems.

PURPOSE OF STUDY

It was recognized that other theoretical systems exist which call for focusing on the internal state of the client and other such variables, but the purpose of this study was to determine the applicability of sociobehavioral principles and techniques for establishing environmental conditions that would influence the behavior of adults. More specifically, the objectives of this study were to determine: a) whether selected behavioral variables would affect a change in behavior of adults in a classroom setting, these variables being social reinforcement, extinction and a discriminative stimulus (S^D); and b) whether the change in behavior would be maintained when social reinforcement was removed

and the extinction and S^D were maintained.

The behavior that was focused upon in this study was off-task behavior exhibited by adult students in a formal classroom setting. The sociobehavioral principles of systematic social reinforcement, extinction and discriminative stimuli were selected as independent variables. It was felt that by initially limiting study variables to these, a base would be developed from which to extend future research efforts to encompass more complex behaviors in the variety of learning settings in which adults are found.

For purposes of this study, it also appeared to be more meaningful to begin with a real rather than a contrived problem for the dependent variable. The specific notion here was to ask an instructor in an actual learning group situation to identify a behavior or class of behaviors he would like to extinguish and replace with other behaviors. This provided a basis for assessing the environmental or climactic circumstances in the learning setting that were reinforcing the desired behavior, some of which the instructor could alter. This, therefore, provided a situation derived from practice to test the applicability of sociobehavioral principles and techniques for influencing or changing behavior of adult students in a classroom setting to the end of establishing an environment more conducive to student learning. Thus, the decision was not to contrive a behavior to be modified, but to begin with a "real" problem in the hope of beginning to develop a theory derived from practice rather than the more familiar theory-to-practice continuum.

REVIEW OF LITERATURE

A review of the literature on learning theory and behavior modification has evidenced a large number of studies conducted in laboratory and clinical settings. Many of these studies have demonstrated the effectiveness of primary reinforcers in changing the behavior of animals in the laboratory. Studies conducted in clinical settings have focused on the treatment of various kinds of pathological and dysfunctional behaviors. (Wolpe and Lazarus, 1966; Yates, 1970). These studies, while often conflicting, in general attest to the efficiency of sociobehavioral principles and techniques as bases for attaining desired behavior changes in these settings. (Aubel and Mech, 1953; Hall, et al, 1968; Thomas, et al, 1968).

Fewer studies have been conducted using "normal" populations as subjects. Those studies which have done so and which were conducted in formal classroom settings, used children as the subjects (Aubel and Mech, 1953; Hall, et al, 1968; Thomas, et al, 1968). In general, these studies used various combinations of social reinforcement, extinction techniques and discriminative stimulus procedures to influence behavior. Although the studies have produced some conflicting results, they do tend to support the use of sociobehavioral principles and techniques in changing the behavior of individual children in classroom settings.

Adult educators, however, are not working with children or animals, nor are they often working with patients in a clinical setting. The populations in adult education settings are usually

a mature, "normal" and socially responsible adult population. Knowles, and others indicate that to treat such audiences in the same manner as we do youth is not consistent with the principles of andragogy—the art and science of helping adults learn. To be inconsistent with these principles is not to recognize the responsibility adults have for their own continuing self-growth and development. Nor is it cognizant of the role the educator is to perform in establishing a climate which facilitates the learner's self directed movement to the attainment of his educational goals. Those circumstances which interfere with this movement are seen as antithetical to a good learning situation. The authors of this paper were concerned with the operationalization of Knowles' principles of andragogy and were particularly concerned with how sociobehavioral principles could be adapted to encourage an adult learning environment in an adult learning group.

METHODOLOGY

The methodology of this study was based upon a design developed by experimental psychologists for analyzing behavioral change over time. It consisted of establishing a baseline which provided a basis for forecasting what level the behavior would be in the future were the experimental procedures not introduced. The new level of behavior, derived after implementation of the experimental procedures, was compared with the level forecast from the baseline measures. A simple comparison of the mean and variances of the data taken from the baseline with those

obtained during the experimental procedures was felt to be a relatively meaningless procedure. It was felt that the trend of the data over time was the most important consideration in analyzing behavior change data such as this. An important variation used by many psychologists is to "reverse" an experiment by discontinuing the experimental procedure and assessing whether behaviors return to the previously established baseline level. This variation was followed, in part, in this study.

This study consisted of a pre-baseline measure; an experimental condition during which the three independent variables (social reinforcement, an extinction technique, and the discriminative stimulus, e.g., a change in the structure of the daily lesson plan) were introduced; and a post-baseline measure where one independent variable, social reinforcement, was removed.

The basic research design was comprised of the following nine steps:

1. Identifying an instructional circumstance that was amenable to this type of study. This was accomplished by:
   a) Interviewing the instructor of a class composed of adult students to determine if he desired to reduce or extinguish a behavior or class of behaviors emitted by his students.
   b) Explaining to the instructor how a sociobehavioral approach might be helpful and gaining his cooperation in implementing the study.

2. Defining and stating operationally the behavior(s) that were to be changed. The instructor identified a behavior he desired to extinguish and a behavior he wished to enhance or to replace the extinguished behavior. This was accomplished by:

   a) The instructor's reporting that certain behaviors such as shuffling paper, getting out of seat, discussing irrelevant problems, and so forth, seemed to occur frequently enough to interfere with the learning process.

   b) Classifying with the instructor all of the undesirable behaviors as "off-task behavior". Developing with the instructor an operational definition of off-task behavior, e.g., any observable or audible behavior which is inconsistent or incongruent with the lesson plan for that particular day, or with the subject being discussed. Also, developing an operational definition of on-task behavior, e.g., any observable or audible behavior not specified as being off-task behavior.

3. Obtaining a baseline or operant level of the present behaviors that were to be changed. This was accomplished through the use of video tape equipment and an instrument constructed by the experimenter. (See Appendix A). The baseline operant level was obtained by:

   a) Video-taping each class session which met twice a week

on Tuesday and Thursday afternoons, a total of three hours per week.

b) Recording off-task behavior that occurred during one minute intervals. This was done by two observers who viewed the video tapes. At the end of each ten minute period, the observers checked with each other to determine if they had any discrepancies in their recording. If any discrepancies were found, the tape was re-played for that period of time. Upon completion of the replay, if no agreement could be reached, any off-task behavior not recorded by both observers was not recorded as off-task behavior. This procedure was used to record off-task behavior for each class period.

4. Identifying potential social reinforcers that could be implemented by the instructor. This was accomplished by:

a) Carefully observing the behavior of the instructor immediately after on-task behavior of students.

b) Making a list of instructor behavior that was viewed as reinforcing. Representative examples of verbal social reinforcement are "yes", "good", "excellent", "that's right", and so forth. Representative examples of socially reinforcing physical expressions are smiling, nodding, motioning with hands (encouraging to continue or to elaborate), moving closer to student (connoting approval or attention), patting student on the back, and so forth.

5. Arranging a learning situation so that undesirable behavior would be extinguished and desirable behavior would be enhanced, by introducing the experimental conditions of systematic social reinforcement, an extinction technique and a change in the structure of the daily lesson plan. This was accomplished by:

   a) Recognizing from the observation during baseline 1 that no clear bench mark was available to suggest to students what behaviors were likely to be followed by approval of the instructor. Therefore, at the beginning of each class, the instructor listed on the board what had been agreed upon to be discussed that day and the sequence in which such was to be discussed. This change in the structure of the daily lesson plan served as a discriminative stimulus (S^D) for the students.

   b) Having the instructor reward all on-task behaviors with one of the social reinforcers previously identified.

   c) Recognizing from the observation during baseline 1 that the instructor frequently responded to off-task behavior, either by verbal or physical attention, the instructor was to ignore and stop responding to any off-task behavior (extinction technique).

6. Shaping and/or rewarding the desired behavior on a continuous basis and extinguishing the undesired behavior.

Training the instructor in the use of these procedures through video tape feedback of his behavior, correcting errors and reinforcing correct behavior. Maintaining records of the behavior being extinguished in order to determine whether response strength or frequency had decreased. This was accomplished by:

a) Having the instructor implement social reinforcement and the extinction technique on a continuous basis, and list topics to be discussed on the board at the beginning of each class.

b) Viewing of the video tapes, after which the experimenter reinforced correct behavior of the instructor and brought to the instructor's attention when he failed to reinforce on-task behavior and when he failed to ignore or responded to off-task behavior.

c) Recording of off-task behavior during the experimental condition in the same manner as during baseline 1.

7. Removing the independent variable of systematic social reinforcement. This was accomplished by requesting the instructor to stop intentionally implementing systematic social reinforcement following on-task behavior.

8. Maintaining records of the behavior being extinguished. This was accomplished as previously explained (3b).

9. Recording the frequency of off-task behavior in ten minute intervals to ascertain the frequency of off-task behavior during baseline 1, the experimental condition,

and baseline 2 to determine if the frequency of off-task behavior during baseline 2 returned to the level of behavior during baseline 1, supporting the prediction that the frequency of off-task behavior would have continued unchanged through the period of experimental conditions had those conditions not been introduced. This was accomplished as previously explained (3b).

DESCRIPTION OF SUBJECTS

The subjects for this study were eight adult students who were enrolled in the undergraduate senior level course "Introduction to Adult Education," at Florida State University. There were three female and five male students whose ages ranged from 20 to 55. All students were white Anglo-Saxon, with the exception of one male Latin student. The instructor was a white, male, Anglo-Saxon.

DATA COLLECTION AND INSTRUMENTATION

Data were collected through the use of video tape equipment and an instrument developed by the experimenter. This instrument permitted continuous observation of behavior in 60 second intervals. (See Appendix A.) The percentage of off-task behavior for each ten minute interval was computed by determining the proportion of one minute intervals in which such behavior occurred. For example, if off-task behavior occurred during three of the ten one minute intervals, the percentage would be computed by dividing ten (total number of minutes) into three (total number of minutes during which off-task behavior occurred), thus obtaining the

average percent score of .30. This procedure was repeated for each ten minute interval so that a percentage score was obtained for each ten minutes of baseline 1. The mean percent was computed by summing all of the percent scores for baseline 1, and dividing the sum total by the number of percent scores. This same procedure was used for the reduction of data during the experimental condition and for baseline 2. Data were presented through the use of tables and graphs, with statistical analysis where appropriate.

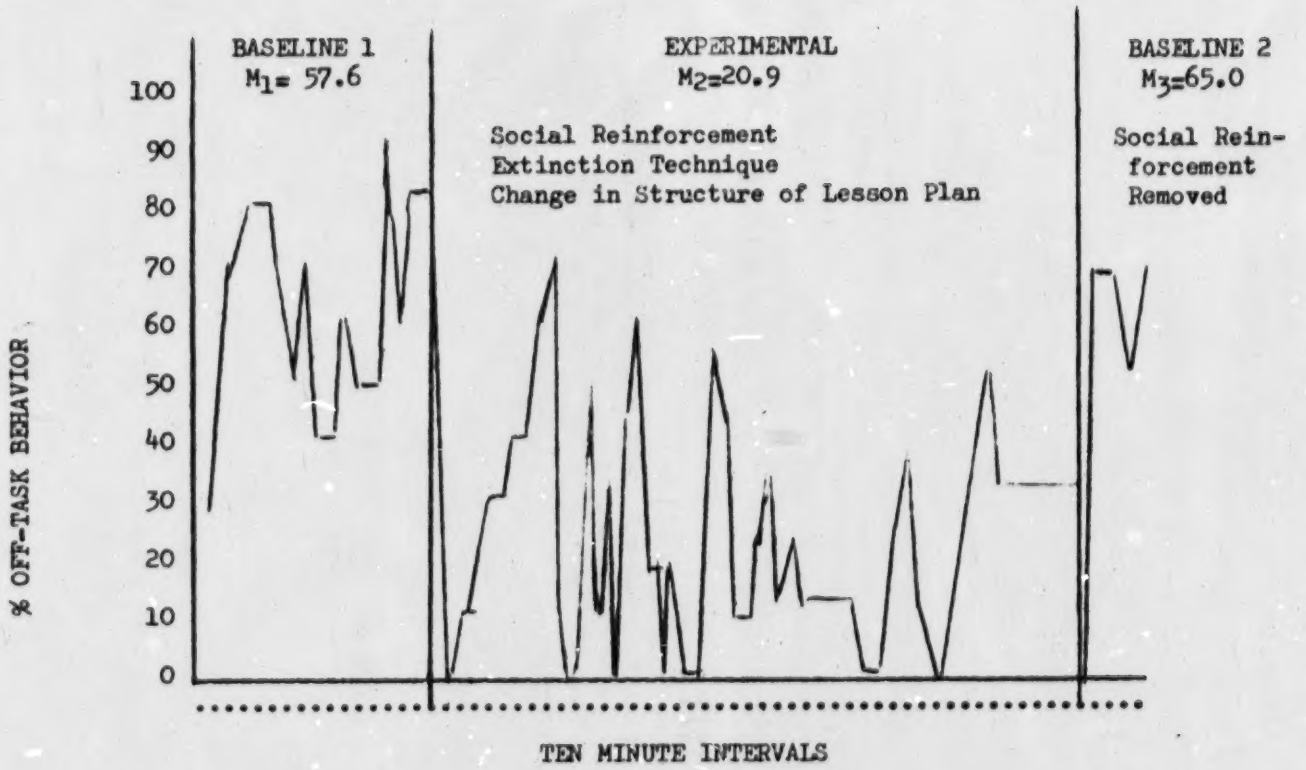
PRESENTATION AND ANALYSIS OF DATA

Figure 1 portrays the mean percentage of off-task behaviors during baseline 1, the experimental condition and baseline 2. During baseline 1, the mean percent of off-task behaviors was 57.6, and the mean percent of off-task behaviors for the experimental condition was 20.9, whereas, that for baseline 2 was 65.0. These findings are consistent with Risely and Wolf's (1972) observation that the frequency or percent of off-task behavior would have continued had not those experimental conditions been introduced. This indicates that the change during the experimental condition was attributable to the independent variables, and with the removal of social reinforcement during baseline 2, both the extinction technique and change in the structure of the daily lesson plan failed to maintain the change in behavior. Two specific hypotheses were tested using these data. The first hypothesis was:

> The mean percent of off-task behaviors during baseline 1 will not be significantly greater than the mean percent of off-task behaviors during the experimental condition.

The one-tailed *t* test was used to test this hypothesis, with a

Figure 1


BASELINE 1
M_1= 57.6
EXPERIMENTAL
M_2=20.9
Social Reinforcement
Extinction Technique
Change in Structure of Lesson Plan
BASELINE 2
M_3=65.0
Social Reinforcement Removed
100
90
80
70
60
50
40
30
20
10
0
% OFF-TASK BEHAVIOR
TEN MINUTE INTERVALS

significance level of .05 established to reject or to fail to reject the null hypothesis.

Table 1 reveals the mean for baseline 1 was 57.6 and for the experimental condition was 20.9. The *t* value for differences between these two means was found to be significant beyond the .05 level. On the basis of this finding, hypothesis number one was rejected. The mean percent of off-task behaviors during baseline 1 was found to be significantly greater than the mean percent of off-task behaviors during the experimental condition.

TABLE 1.--Differences in mean percent of off-task behaviors between baseline 1 and the experimental condition

Variable	Mean of Baseline 1 (N=8)	Mean of Experimental condition (N=8)	*t*
Off-task Behavior	57.6	20.9	2.85[a]

[a] $p < .05$.

The second hypothesis tested was:

> The mean percent of off-task behaviors during baseline 2 will not be significantly less than the mean percent of off-task behaviors during baseline 1.

Data for the second hypothesis presented in Table 2 reveal the mean score of off-task behavior for baseline 2 was 65.0 and that for baseline 1 was 57.6. The *t* value was not significant. Accordingly, the second hypothesis was not rejected. The mean percent of off-task behaviors during baseline 2 was not found to be significantly less than the mean percent of off-task behaviors during baseline 1.

This supports the projected expectation based upon the strategy outlined by Risely and Wolf for analyzing behavior change over time.

TABLE 2.--Differences in mean percent of off-task behaviors between baseline 1 and baseline 2.

Varisble	Mean of Base-line 2 (N=8)	Mean of Base-line 1 (N=8)	t
Off-task Behavior	65.0	57.6	.55[a]

[a]Not significant

CONCLUSIONS

Certain limitations must be recognized before any conclusions can be considered. No sampling procedures were used in selecting the study population. Also, as there was no systematic recording of the instructor's behavior, there was no way to determine whether his use of social reinforcement and the extinction technique was accomplished in a consistent manner. Too, time did not permit the experimenter to reinstate the experimental condition so as to further specify that he had gained control of the independent variables. Lastly, it should also be pointed out that no attempt was made to replicate this experiment with other subjects.

With these limitations in mind, and on the basis of findings of this investigation, the following conclusions were reached:

1) Sociobehavioral principles and techniques are relevant when an instructor desires to change the behavior of adults in learning groups. Specific reference is made to the

applicability of discriminative stimuli (S^D), the use of extinction techniques and the systematic use of social reinforcement to enhance or replace an undesirable behavior with a more desirable behavior.

2) Social reinforcement is a necessary condition in shaping or changing behavior in learning groups.
3) Members of the helping professions, such as adult education instructors, can be trained in the use of a sociobehavioral approach for the purpose of influencing or changing the behavior of adults in learning situations.
4) Behavior of adults can be influenced or changed by focusing upon observable independent and dependent variables without utilizing hypothetical or observable variables or events.

IMPLICATIONS

It is important to find ways to refine current methods and techniques being implemented in the instruction of adults. Further investigation of these areas should be undertaken because adults spend so much time in formal learning circumstances, and we are not always cognizant of the consequences of our instructional behaviors. Hopefully, this study has shed some light on the extent to which educators influence student behavior.

Implications can be derived not only from the findings of this study, but also from the methodology utilized. If members of the helping professions could be trained to use strategies for analyzing behavioral change through time, as explicated by Risely and Wolf, they would more likely be able to:

1) Apply this strategy in actual practice situations to determine the effects of certain principles and techniques on the behavior of clients.
2) Use results of these evaluative studies to support or reject principles and techniques being employed to accomplish the ends of the learning situation.
3) Evaluate some of their own hunches and make public the findings.
4) Begin developing a body of knowledge, derived and supported through actual practice situations.

Presumably, programs designed for training persons to work with adults in learning groups might find it desirable to incorporate a specific component to train these persons in the use of a sociobehavioral approach derived from research on learning and behavior modification in the social and behavioral sciences. This training could be directed toward both professionals and para-professionals who are in direct contact with the learner, as well as toward administrative and supervisory staff who have responsibility for enhancing the efforts of others. A sociobehavioral approach could be extended to a total institutional or agency system serving adults so that it could create a milieu for enhancing adaptive (desirable) behavior and reducing deviant (undesirable) behavior of all personnel involved in the system. Research on how this might be accomplished, as well as the consequences of this effort, needs to be conducted.

Ethical considerations become important adjuncts in such efforts. For example, who, or what group of people, will decide

what behaviors are to be enhanced and what behaviors are to be reduced or extinguished? Not surprisingly, this type of decision is already being made by most adult education practitioners although they are reluctant to admit their conscious efforts to manipulate the behavior of others. They will admit their commitment to the attainment of predetermined educational objectives or to the effective functioning of members in their organization, but fail to correlate this with behavioral "manipulation". It would appear more ethical to recognize we unwittingly do use sociobehavioral principles and techniques, even though it may not be on a systematic basis. To not recognize this is to not recognize the mechanisms we use to influence others. Rather than being controlling however, hopefully, our goal would be to enable as many adults as possible to gain control of the contingencies affecting their daily lives, thus allowing them to become more independent functioning members of society.

Indeed, if it can be agreed that one of the major tasks of the adult educator is to develop a climate that is maximally conducive to learning, then it behooves the educator to be consciously and systematically aware of the extent to which his own behavior is providing contingencies of reinforcement to that end. If they are not, the educator needs to consciously and systematically examine those variables under his control so that his behavior can be adjusted to provide the optimal climate for the attainment of desired educational ends.

APPENDIX A

Legend

I = Idiosyncratic (Individual Behavior)
P = Professor Behavior
S = Student Behavior

Date _____
Rater _____
Sheet Number _____

TASK/OFF-TASK LOG

Time in Minutes

	1	2	3	4	5	1	2	3	4	5
I										
P										
S										

	1	2	3	4	5	1	2	3	4	5
I										
P										
S										

	1	2	3	4	5	1	2	3	4	5
I										
P										
S										

	1	2	3	4	5	1	2	3	4	5
I										
P										
S										

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